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A new species of *Phellinus (Hymenochaetaceae)* growing on bamboo in tropical China

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Abstract — *Phellinus bambusicola* sp. nov. is described and illustrated from Hainan Province, southern China. It has annual and resupinate basidiocarps, clay-buff to pale fawn pore surface, abundant hymenial setae, broadly ellipsoid and thin-walled basidiospores, setal hyphae present in the subiculum but absent at the sterile margin, and a growth on bamboo. The new species is similar to *Phellinus ferruginosus*, but the latter has an annual to perennial growth habit, yellowish brown to dark reddish brown pore surface, smaller pores (6–8 per mm), setal hyphae present at the sterile margin, and narrowly ellipsoid basidiospores.

Key words — *Hymenochaetales*, polypore, taxonomy

Introduction

Phellinus Quél., with over 250 taxa worldwide, is the largest genus in the *Hymenochaetaceae* (Larsen & Cobb-Poulle 1990, Dai 1999, 2010, Núñez & Ryvarden 2000, Gibertoni et al. 2004, Ryvarden 2004, Parmasto 2007). Wanger & Fischer (2002), who studied *Phellinus* sensu lato and *Inonotus* sensu lato phylogenetically, divided the *Phellinus–Inonotus* complex into 13 genera. Since Dai (1999) recorded 45 species of *Phellinus* from East Asia new species or new records have been found in China, where about 50 species in the genus have

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been reported thus far (Dai 1995, 1999, Dai et al. 2003, 2008, Dai & Yang 2008, Cui et al. 2009).

During a study of wood-inhabiting fungi in southern China, an unknown species of *Phellinus* growing on bamboo was identified and is described in the present paper.

Materials and methods

The studied specimens were deposited in herbaria as cited below. The microscopic procedure follows Cui & Dai (2008). In presenting the variation in the size of the spores, 5% of measurements were excluded from each end of the range, and given in parentheses. In the text the following abbreviations are used: IKI = Melzer's reagent, IKI– = negative in Melzer's reagent, KOH = 5% potassium hydroxide, CB = Cotton Blue, CB– = acyanophilous, L = mean spore length (arithmetic average of all spores), W = mean spore width (arithmetic average of all spores), Q = variation in the L/W ratios between the specimens studied, n = number of spores measured from given number of specimens. Sections were studied at magnification up to ×1000 using a Nikon Eclipse E 80i microscope and phase contrast illumination. Drawings were made with the aid of a drawing tube. Special colour terms follow Anonymous (1969) and Petersen (1996).

Taxonomy

Phellinus bambusicola L.W. Zhou & B.S. Jia, **sp. nov.** Fig. 1

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Carpophorum annuum, resupinatum. Facies pororum avellanea vel hinnulea; pori angulati, 3–5 per mm. Systema hypharum dimiticum, hyphae generatoriae septatae, efibulatae. Sporae late ellipsoideae, IKI–, CB–, 4.2–5 × 3.1–4 µm.

Type. — China. Hainan Province, Changjiang County, Bawangling Nature Reserve, on dead bamboo, 8.XII.2009 Cui 8692 (**holotype** in BJFC, **isotype** in IFP).

Etymology — *bambusicola* (Lat.): refers to growth on bamboo.

Fruitbody — Basidiocarps annual, resupinate, firmly attached to the substrate, not readily separable, without odour or taste when fresh, hard corky when dry, up to 15 cm long, 5 cm wide and 2 mm thick at centre; sterile margin pale clay-buff to pale fawn, up to 3 mm wide. Pore surface clay-buff to pale fawn when dry; pores angular, 3–5 per mm, dissepiments thin, entire when juvenile, lacerate with age. Subiculum yellowish brown to fawn-brown, hard corky, about 0.4 mm thick. Tubes concolorous with pore surface, corky, about 1.6 mm long.

Hyphal structure — Hyphal system dimitic; all septa without clamp connections; skeletal hyphae IKI–, CB–; tissue darkening but otherwise unchanged in KOH.

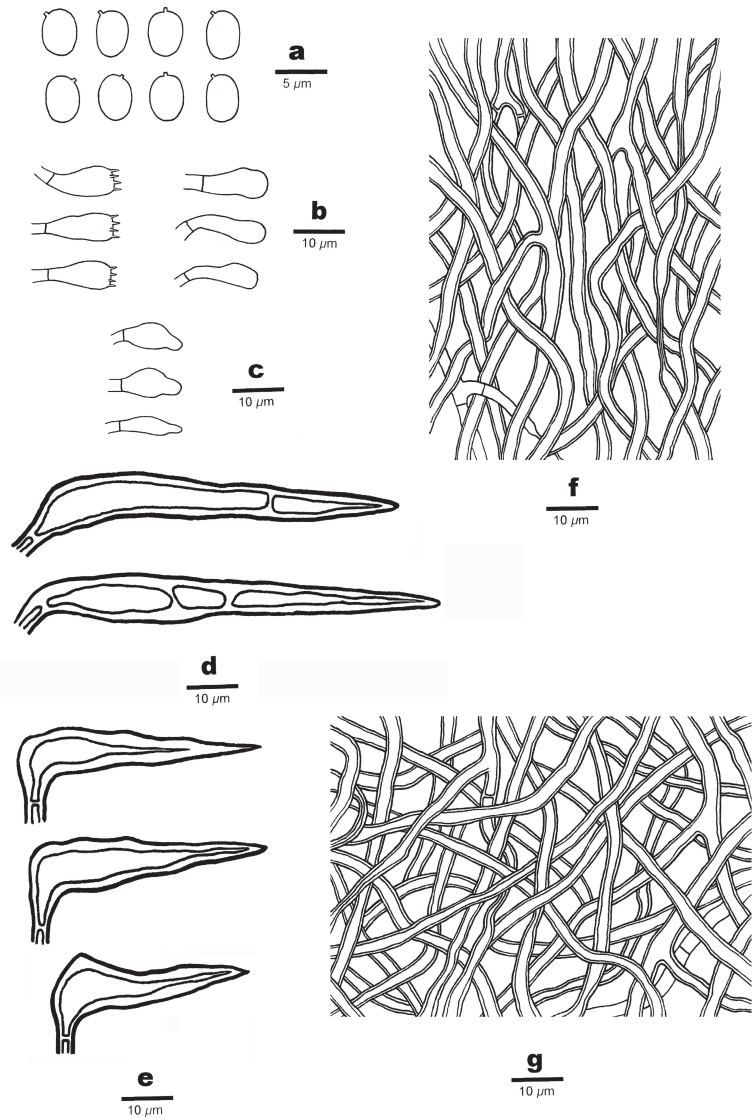

Fig. 1. Microscopic structures of *Phellinus bambusicola* (drawn from the holotype).
a: Basidiospores. b: Basidia and basidioles. c: Cystidioles.
d: Hyphoid setae. e: Setae. f: Hyphae from trama. g: Hyphae from context.

Subiculum — Generative hyphae infrequent, hyaline to pale yellowish, thin- to slightly thick-walled, occasionally branched, some collapsed, 2.2–3.5 μm in diam; skeletal hyphae pale yellowish to apricot-orange, thick-walled with a wide lumen, occasionally branched, some collapsed, interwoven, 2–5 μm in diam; setal hyphae frequent, apricot-orange, thick-walled, tapering to apex, 6.5–10.5 μm wide and up to 110 μm long.

Tubes — Generative hyphae infrequent, hyaline to pale yellowish, thin- to thick-walled, frequently branched and some collapsed, 1.8–3.5 μm in diam; skeletal hyphae dominant, pale yellowish to apricot-orange, thick-walled, occasionally branched, and some collapsed, parallel along the tubes, 1.6–4 μm in diam. Hymenial setae frequent, ventricose to subulate, tapering to apex, dark brown, thick-walled, 31.8–54.5 × 9.2–14.3 μm. Cystidia absent, fusoid cystidioles present, hyaline, thin-walled, 9.8–17 × 4.9–6.3 μm. Basidia clavate, bearing four sterigmata and a simple septum at the base, 8.7–18 × 3.9–6 μm; basidioles in shape similar to basidia, but slightly smaller. Irregular crystals present in trama and hymenia.

Spores — Basidiospores broadly ellipsoid, hyaline, thin-walled, smooth, IKI–, CB–, (4–)4.2–5(–5.9) × (3–)3.1–4 μm, L = 4.68 μm, W = 3.56 μm, Q = 1.31 (n = 30/1).

Type of rot — White rot.

Remarks — *Phellinus bambusicola* was found on bamboo in tropical China. It is characterized by annual, resupinate basidiocarps, a clay-buff to pale fawn pore surface, abundant hymenial setae, broadly ellipsoid and thin-walled basidiospores, setal hyphae present in the subiculum while absent at the sterile margin, and growth on bamboo.

This species is similar to *Phellinus ferruginosus* (Schrad.) Pat., but the latter shows an annual to perennial growth habit, yellowish brown to dark reddish brown pore surface, smaller pores (6–8 per mm, Dai 1999), setal hyphae present at the sterile margin, and narrowly ellipsoid basidiospores are (4.7–5.3 × 3.0–3.5 μm, L = 5.04 μm, W = 3.16 μm, Q = 1.59).

Phellinus bambusarum (Rick) M.J. Larsen also grows on bamboo and may be confused with *P. bambusicola*. However, *P. bambusarum* differs by a perennial growth habit, smaller pores (6–8 per mm) with thick-walled dissepiments, rare and smaller hymenial setae (13–25 × 6–8 μm), and globose to subglobose and dextrinoid basidiospores (Ryvarden 2004).

Phellinus bambusinus (Pat.) Pat., another species growing on bamboo, is distinguished from *P. bambusicola* in its pileate basidiocarps, ochraceous brown and glancing (reflective) pore surface, small invisible pores, and ovoid basidiospores (5 × 4 μm); moreover, it has conidia (Larsen & Cobb-Poulle 1990).

A key to species of *Phellinus* on bamboo

1. Basidiocarps pileate; conidia present ..... *P. bambusinus*
1. Basidiocarps resupinate; conidia absent 2
2. Pores 6–8 per mm; basidiospores subglobose, dextrinoid ..... *P. bambusarum*
2. Pores 3–5 per mm; basidiospores broadly ellipsoid, IKI– ..... *P. bambusicola*

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